

REMARKS/ARGUMENTS

In response to the Office Action dated January 19, 2007, Applicant acknowledges the withdrawal of Claims 8-17 from consideration as being drawn to a nonelected invention. Claims 1-7 and 18-25 remain pending for prosecution with Claims 1 and 18 being independent.

I. Summary of the Claims

Independent Claim 1 recites an apparatus for automated finishing winding of a membrane section having a leading edge and a width, the apparatus including at least one motorized pull roll for feeding the membrane section into a finishing product winding machine, a mandrel disposed proximal to an output region of the finishing product winding machine and adapted to receive a core, an automated adhesive applicator configured for traversing at least a portion of the length of the core parallel to the axis thereof to apply an adhesive material to the core, and a guide to index the leading edge of the membrane section to the core.

Independent Claim 18 recites an apparatus for automated finishing winding of a membrane section having a leading edge and a width, the apparatus including at least one motorized pull roll for feeding the membrane section into a finishing product winding machine, a mandrel disposed proximal to an output region of the finishing product winding machine and adapted to receive a core, an automated adhesive applicator configured for traversing at least a portion of the length of the core parallel to the axis thereof to apply an adhesive material to the width of the membrane, and a guide to index the leading edge of the membrane section to the core.

II. Claim Rejections - 35 U.S.C. § 103

A. The Rejection

Claims 1-7 and 18-25 were rejected under 35 U.S.C. § 103(a) as being unpatentable over the admitted prior art (APA) in view of U.S. Patent No. 5,092,533 to Gangemi. In particular, the Office Action asserted that the APA teaches that was known “to form a waterproof membrane from a polymer film base onto which one applied an asphaltic material to the base, a top film was applied to the waterproof material thereby sandwiching the waterproof material between the top film and the base sheet. The waterproof membrane so formed was then cooled, accumulated and fed to a winder. Typically, the membrane was cut in half longitudinally prior to being wound for storage at the winder where the two parallel membranes were wound onto adjacent paper cores.” The Office Action further asserted that the APA “suggested that the winding operation was a manual operation where the leading edge of the membrane extending from the winder pull rolls was hand taped or otherwise secured to the core. Upon completion of the winding of the membrane for storage, the trailing edge was cut manually and the trailing edge was secured to the roll to prevent unwinding of the same manually.” However, it was acknowledged that the APA “failed to teach apparatus for mechanically securing the leading edge as well as severing the web to create the trailing edge and application of the trailing edge to the roll.”

In light of the acknowledged failure of the APA to teach or suggest all of the elements of Applicant’s claimed invention, Gangemi was asserted to suggest that “it was known in the art of winding to create a roll of material to provide for continuous production of successive rolls of material. The device includes a winder to roll up the material subsequent to formation of the web of material. The take up winder includes a core thereon which was disposed proximate the output region of the finishing product winding machine, see core 8.” As the APA is asserted to teach, “the cores are usually manually fit upon a mandrel of the winder.” The Office Action then

states that “Gangemi suggested that the device included an automated adhesive applicator 30 which included two laterally spaced spray nozzles 36, 36’ that were used to apply adhesive 44, 44’ upon the web of material. The adhesive applicator 30 was disposed on a carriage 38 which moved in direction 40 across the web of material W transverse to the direction of feed of the web (which was fed in direction 22) in order to apply two continuous stripes of adhesive 44, 44’ across the web W.” It was further asserted that “Gangemi additionally suggested that the device included a means to index the leading edge of the web W carrying the adhesive stripe 44 thereon to the core 8 which included the use of vacuum on drum 12 as well as the use of a pivoting arm to properly position the web edge prior to introduction of a new core 8.” Therefore, the Office Action concludes, “[i]t would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize the techniques of Gangemi to provide for the automated take up of the membrane material in the admitted prior art which was a waterproof membrane in order to eliminate the need for manual application of adhesive to join the ends of the roll and start a new roll in a winding take up operation.”

B. Discussion

When determining the question of obviousness, underlying factual questions are presented which include (1) the scope and content of the prior art; (2) the level of ordinary skill in the art at the time of the invention; (3) objective evidence of nonobviousness; and (4) the differences between the prior art and the claimed subject matter. Graham v. John Deere Co., 383 U.S. 1, 17-18, 148 USPQ 459, 467 (1966).

Applicant respectfully submits that the cited reference (U.S. Patent No. 5,092,533 to Gangemi) is not analogous art and is therefore an improper reference for use in the present application. “In order to rely on a reference as a basis for rejection of an applicant’s invention,

the reference must either be in the field of applicant's endeavor or, if not, then be reasonably pertinent to the particular problem with which the invention was concerned." In re Oetiker, 24 USPQ2d 1443 (Fed. Cir. 1992). Applicant's field of endeavor is complex machinery designed specifically for winding waterproofing membranes and other types of polymer films. Gangemi is directed to apparatus for winding a paper web material. Paper and other products formed from a paper web have properties that differ greatly from waterproofing membranes and other polymer films. The significant differences in the physical properties of waterproofing membrane and paper material require separate approaches in the formation and handling of these two types of materials in process. Gangemi is therefore clearly not within Applicant's field of endeavor. Further, Gangemi is not reasonably pertinent to the particular problem with which the present invention is concerned. The particular problem solved by the present invention is the automation of the process of winding a finished waterproofing membrane product such that downtime associated with manually cutting and taping the edges of the waterproofing membrane is reduced while requiring one less operator for the winding process. Applicant therefore contests the Gangemi patent as a proper reference in the present application and respectfully submits that it is nonanalogous art.

The person of ordinary skill in the art is a hypothetical person who is presumed to know the relevant prior art. Custom Accessories, Inc. v. Jeffrey-Allan Indus., Inc., 807 F.2d 955, 962, 1 USPQ2d 1196, 1201 (Fed. Cir. 1986). The level of ordinary skill in the art of winding apparatus may be determined by looking to the references of record. In re GPAC, Inc., 57 F.3d 1573, 35 USPQ2d 1116 (Fed. Cir. 1995). The references of record in this case reveal a moderate level of sophistication in waterproof membrane manufacturing is associated with one of ordinary skill. Thus, Applicant submits that, as substantiated by the cited references, those with a

bachelor's degree in engineering or significant experience in the paper and waterproof membrane manufacturing industry or the like would most likely be a person with ordinary skill in the this field of endeavor.

With respect to objective evidence of nonobviousness, Appellant submits that the record supports the conclusion that there are long-felt but unsolved needs met by the present invention. The present invention is directed to the particular problem of providing an automated winding process for a waterproofing membrane thereby reducing the time and labor expense of creating the rolled membrane. In particular, downtime associated with manually cutting and taping the edges of the waterproofing membrane is reduced while requiring one less operator for the winding process.

As stated in the "Background of the Invention" section of the present application, "[t]he production of waterproofing membranes is a multi-part process." A "polymer film base sheet is unwound continuously from the roll and fed through a waterproofing applicator." After waterproofing, the "waterproof membrane product is cooled, accumulated and fed into a winder." "Typically, in the large-width waterproof membrane production process . . . the membrane is cut in half longitudinally at a centerline thereof prior to being wound up for storage. The two parallel membrane sections are then wound onto adjacent paper cores, or a core of other suitable material. In current state of the art of large-width waterproofing membrane production systems, the paper cores . . . are manually fitted onto the mandrel of the finished product winder. The leading edge of the membrane extending from the winder pull rolls is hand taped or otherwise secured to the core. Once the leading edge is secured to the core, the winder winds the membrane into rolls of various lengths depending on which product is being processed. Upon completion of the roll, the trailing edge may be taped to the roll to prevent unwinding of the

finished rolled product. The roll is removed from the finished product winder and new cores are manually fitted onto the winder mandrel, and thus the process may begin again.”

The description of the background of the present invention is the “Admitted Prior Art” cited in the Office Action. Applicant, however, respectfully submits that the APA is nothing more than a part of the background of the unsolved need that is met by Applicant’s claimed invention, namely, providing an automated winding process for a waterproofing membrane thereby reducing the time and labor expense of creating the rolled membrane. Further, downtime associated with manually cutting and taping the edges of the waterproofing membrane is reduced while requiring one less operator for the winding process. The APA had no knowledge of the unsolved problem associated with the present invention as shown by the fact that it does not teach or suggest: (1) apparatus for automated finishing winding of a membrane; (2) an automated adhesive applicator configured for transversing at least a portion of the length of the core parallel to the axis thereof to apply an adhesive material to the core; or (3) a guide to index the leading edge of the membrane section to the core. It is also acknowledged in the Office Action itself that the APA does not teach or suggest apparatus for mechanically securing the leading edge as well as severing the web to create the trailing edge and application of the trailing edge to the roll. Therefore, the APA contains no explicit or implicit teaching that is actually relevant to the present claimed invention. Such objective evidence of nonobviousness must be considered if presented. Pentech, Inc. v. Graphic Controls Corp., 776 F.2d 309, 315, 227 USPQ 766, 770 (Fed. Cir. 1985).

In determining whether obviousness is established by the teachings of the prior art, “the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art.” Cable Electric Products, Inc. v. Genmark, Inc., 770 F.2d 1015, 1025, 226 USPQ

881, 886-887 (Fed. Cir. 1985); In re GPAC, 35 USPQ at 1123. To invalidate claimed subject matter for obviousness, the combined teachings of the prior art references must suggest, expressly or by implication, the improvements embodied by the present invention. In re Sernaker, 702 F.2d 989, 217 USPQ 1 (Fed. Cir. 1983).

“In proceedings before the Patent and Trademark Office, the Examiner bears the burden of establishing a prima facie case of obviousness based on the prior art.” In re Fritch, 23 USPQ2d 1780, 1783 (Fed. Cir. 1992). “Obviousness cannot be established by combining the teachings of the prior art to produce the claimed invention, absent some teaching or suggestion supporting the combination. Under Section 103, teachings of references can be combined *only* if there is some suggestion or incentive to do so.” ACS Hospital Systems, Inc. v. Montefiore Hospital, 732 F.2d 1572, 1577, 221 USPQ 929, 933 (Fed. Cir. 1984).

As stated above, the Office Action acknowledged that the APA does not contain within its four corners a teaching adequate to support the obviousness rejection. Moreover, the Office Action has failed to demonstrate the suggestion or motivation, present either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to combine the reference teachings as required by the first criteria of obviousness. The mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination. In re Mills, 16 USPQ2d 1430 (Fed. Cir. 1990). Since Gangemi fails to teach or suggest Applicant’s invention as claimed, Applicant respectfully submits that the combination of the APA and Gangemi is improper and fails to teach or suggest the present invention.

Gangemi teaches a method for effecting a set change in a winder for a papermaking machine including skip-slitting the paper web across the width of the web transversely to the

direction of web travel in the winder. An adhesive stripe is applied to the web on either side of where the skip-slit is located. The skip-slit and application of the glue is done at a location upstream of the winder to avoid the problems associated with mounting and operating such equipment beneath the winder. The paper web is severed by advancing the skip-slit to a position near the 10 o'clock position over the surface of a first winder drum where the web is halted and the wound paper roll is urged off its support on the first winder drum to thereby increase the tension in the web between the round roll and web supported on the first winder drum to sever the web. The adhesive stripes on either side of the severance are then applied to the wound roll and a new core and the process is repeated.

Gangemi's method, however, does not teach or suggest Applicant's invention as claimed. In fact, Gangemi teaches away from the present invention. As stated hereinabove, Gangemi's method is specific to a paper web material. Paper and other products formed from a paper web have substantially different physical properties than waterproofing membranes and other polymer films. The significant differences in the physical properties require different approaches in the formation and handling of these materials in process. For example, the tensile paper strength of a paper web would not be sufficient to survive the line tensions of Applicant's waterproofing membrane winding apparatus. Moreover, the survivability of Gangemi's paper web would be even more diminished if the paper web were perforated upstream as taught by Gangemi. In Applicant's winding process, however, even a small tear in the membrane upstream would likely cause a line break thereby shutting down the entire process.

Moreover, Gangemi actually teaches away from the present invention in that Gangemi initiates the sheet-splitting and adhesive application steps upstream of the winding apparatus. As clearly stated in Col. 2, lines 14-23, Gangemi teaches that "the cross-cutting, but not complete

severance, of the paper web, the application of the adhesive . . . is provided by separate apparatus, each component of which is positioned upstream of the first winder drum where it can be easily served and replaced, if necessary, without disrupting the other components needed to effect a set change, which is the removal of a wound roll and the initiation of winding of the web onto a new core.” (emphasis added). Applicant’s invention, on the other hand, provides for sheet-splitting and adhesive application in the winder section itself. *See, e.g.*, ¶ [0009]-[0010]. The proposed modification of Gangemi and combination with the APA to arrive at Applicant’s claimed invention would therefore render Gangemi inoperable for its intended purpose. Accordingly, Applicant respectfully submits that, because there is no teaching or incentive to make the asserted modification and/or combination, a prima facie case of obviousness has not been made.

Gangemi also fails to teach or suggest an automated winding apparatus including an automated adhesive applicator configured for traversing at least a portion of the length of the core parallel to the axis thereof to apply an adhesive material to the core. Rather, Gangemi teaches that the “application of the adhesive is provided by separate apparatus, each component of which is positioned upstream of the first winder drum” Col. 2, lines 17-19 (emphasis added). In addition to being a separate piece of equipment, Gangemi’s adhesive is applied solely to the sheet material on either side of the perforation and cannot be applied directly to the core as claimed by Applicant in independent Claims 1 and 18.

Further, Gangemi also fails to teach or suggest a cutting device attached to an arm and configured for traversing the width of the membrane section as well as the adhesive applicator being coupled to the arm as claimed by Applicant in Claims 4-5 and 21-22. Rather, Gangemi teaches the use of a pulsed laser upstream from the winder that perforates the paper web material

along its width. When the perforate area reaches the winder section, two winding rolls are used to create sufficient tension to break the paper web material at the perforation. The present invention, on the other hand, teaches the use of a knife edge attached to a mechanical arm that automatically traverses the width of the waterproofing membrane thereby creating a uniform split with a leading and trailing edge in a single step. Moreover, the present invention does not require a second winding roll or a mandrel that are used in coordinated effort with the first winding roll to create sheet tension.

Moreover, Gangemi's upstream adhesive applicator requires the use of ultraviolet light-reactive adhesive that will not adhere to the processing equipment as the sheet travels down the line. Once in the winder section, the adhesive is made reactive with ultraviolet light thereby allowing the leading edge of the split paper web to adhere to a core and the trailing edge to adhere to a finished roll. This gluing process taught by Gangemi is very complex and requires, in addition to the ultraviolet light-reactive adhesive, at least two separate pieces of equipment, namely, an upstream applicator and a downstream ultraviolet light source. In contrast, the present invention is very simple and involves an adhesive applicator that may be coupled to the same mechanical arm as the knife edge. Because the present invention teaches the coupling of an adhesive applicator to the same mechanical arm as the knife edge, the application of adhesive and splitting of the waterproofing membrane can be performed in a single step. When the mechanical arm traverses the width of the waterproofing membrane, adhesive is applied just ahead of the knife edge. Furthermore, the present invention allows the adhesive to be applied directly to the core material. Finally, Applicant's invention does not require non-ultraviolet light-reactive adhesive as is required by Gangemi.

Prima facie obviousness requires that there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the references. No such suggestion or motivation exists in either the APA or Gangemi to provide an apparatus for automated finishing winding of a membrane having an automated adhesive applicator configured for transversing at least a portion of the length of the core parallel to the axis thereof to apply an adhesive material to the core and a guide to index the leading edge of the membrane section to the core. Moreover, there is no teaching or suggestion in either of the cited references for apparatus for mechanically securing the leading edge as well as severing the web to create the trailing edge and application of the trailing edge to the roll. Moreover, there is no expectation of success in the combination of the APA and Gangemi since neither discloses these elements of Appellant's claimed invention and the proposed modification of Gangemi would render the patented invention inoperable and unsatisfactory for its intended purpose. Finally, the prior art references must teach or suggest all the claim limitations. As discussed above, neither the APA nor Gangemi teach or suggest all of the elements of Appellant's independent Claims 1 and 18. Unless all the elements are taught by the references, there can be no success in modifying them.

Thus, at the time the present invention was made, both the APA and Gangemi, individually and in combination, fail to teach or describe all of the limitations claimed by Appellant in independent Claims 1 and 18 and the claims depending therefrom. Accordingly, Claims 1-7 and 18-25 are nonobvious under § 103(a) and Applicant respectfully requests reconsideration and withdrawal of this rejection.

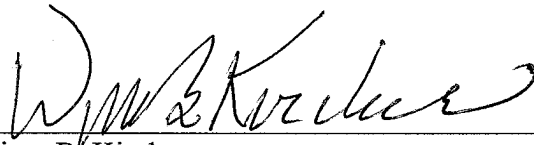
III. Conclusion

If any issue regarding the allowability of any of the pending claims in the present application could be readily resolved, or if other action could be taken to further advance this application such as an Examiner's amendment, or if the Examiner should have any questions regarding the present amendment, it is respectfully requested that the Examiner please telephone Applicant's undersigned attorney in this regard. Should any fees be necessitated by this response, the Commissioner is hereby authorized to deduct such fees from Deposit Account No. 11-0160.

Respectfully submitted,

Date:

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